California Environmental Justice Alliance

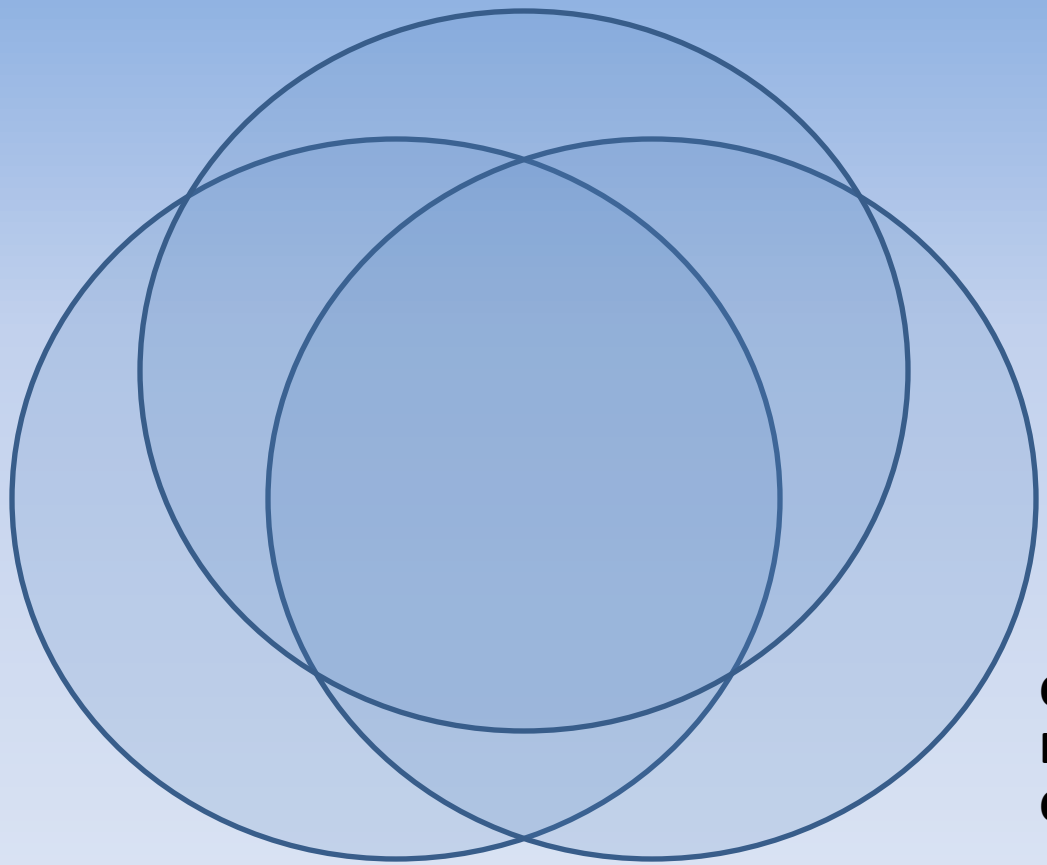
NEM Successor Program for Residential Customers in Disadvantaged Communities

Presentation to California Public Utilities Commission Workshop

April 7, 2015

Program Alternatives & Demographics

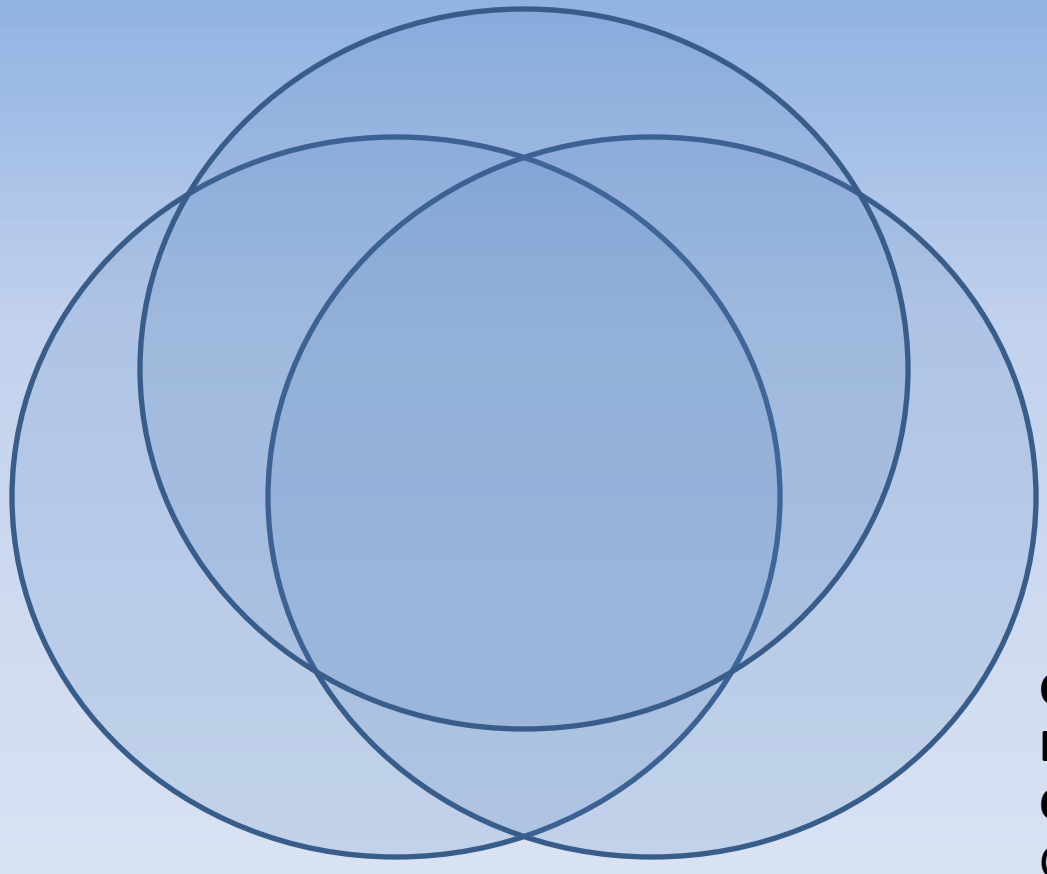
Three Categories overlap but not identical



Program Alternatives & Demographics

Customers on CARE Rate:
CleanCARE Proposal

Three Categories
overlap but not identical



Customers with Low Income:
Potential Expansion Program

Customers in Disadvantaged Communities:
CEJA Proposal

Program Alternatives & Demographics

Disadvantaged Communities
Face Cumulative Challenges

Low Income

High Unemployment

High Pollution

Health Problems

Identified by EJ Screening

Program Alternatives & Demographics

CEJA Alternative Proposal: Net-Meter Feed-in Tariff (NEM-FiT)

Current Net Metering Is Inequitable for Disadvantaged Communities

Alternatives Are Needed

NEM-FiT Can Address Barriers

Challenge: Barriers

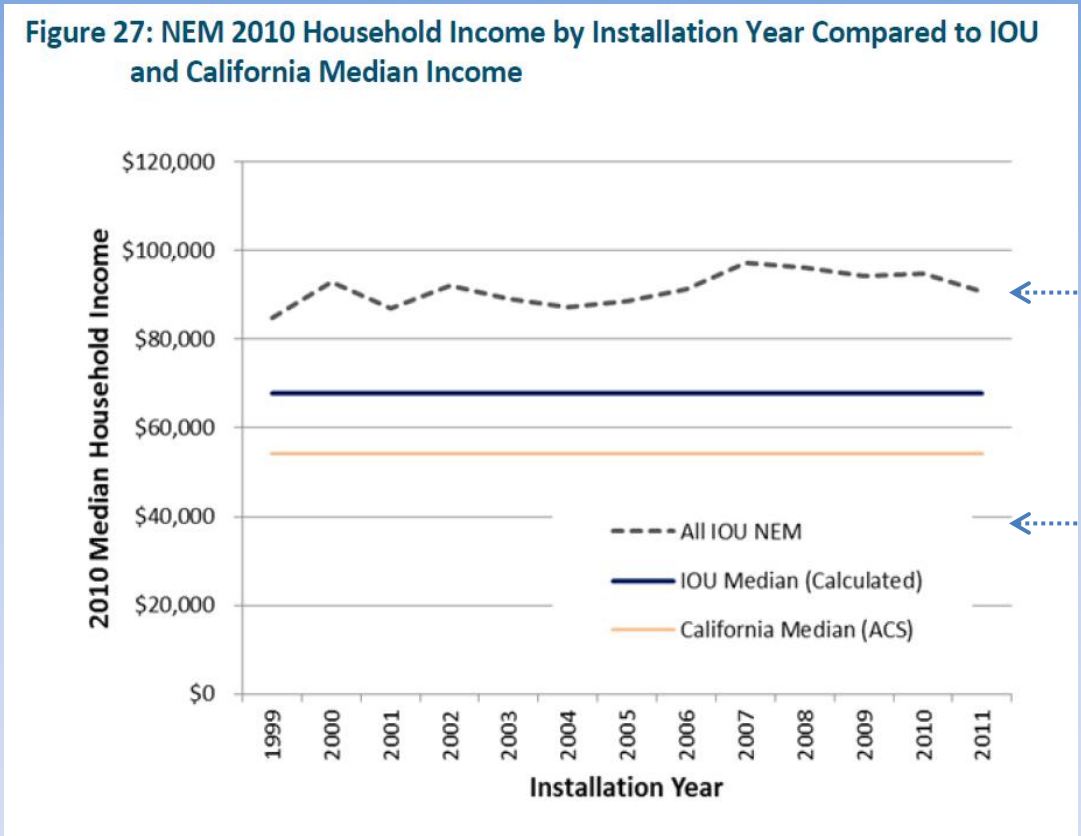
Challenges Related to Income

- High Upfront Cost
- Access to Credit
- Property Ownership

Challenges Caused by Program Design

- Low Net Meter Compensation Rates
- Financial Risk
- Split Incentive

Challenge: Income & Net Metering



Average income of net metering customers = $91,210 per year

CARE Rate in 2015 3-person household upper limit: $39,580

Average income of net metering customers is 68% higher than California average, 34% greater than IOU service territories' average.

California Net Energy Metering Ratepayer Impacts Evaluation, California Public Utilities Commission, October 2013, p. 113.

Challenge: Income & Net Metering

Table 9: Household Income for SCE, 2012

Income Class	Percentage of SCE Residential Population	
	NEM	Non-NEM
< $15,000	2.03	6.39
$15,000 - $24,999	2.27	6.54
$25,000 - $34,999	2.87	7.41
$35,000 - $49,999	4.96	12.6
$50,000 - $74,999	13.97	20.77
$75,000 - $99,999	16.28	15.64
$100,000 - $124,999	11.67	10.01
$125,000 - $149,999	9.46	6.16
$150,000 - $174,999	9.68	4.18
$175,000 - $199,999	9.7	3.42
$200,000 - $249,999	5.91	3.13
$250,000+	10.54	3.12
Sum	**100**	**100**

Lowest incomes under-represented in Net Metering by factor of ~2 to 3

Highest incomes over-represented in Net Metering by factor of ~2 to 3

California Net Energy Metering Ratepayer Impacts Evaluation, CPUC, October 2013, Appendix E, Income Analysis, Advent Consulting Associates, p. E-15.

Net Metering: Unintended Consequences

Good Discount Rates

CARE Discount
helps low income customers

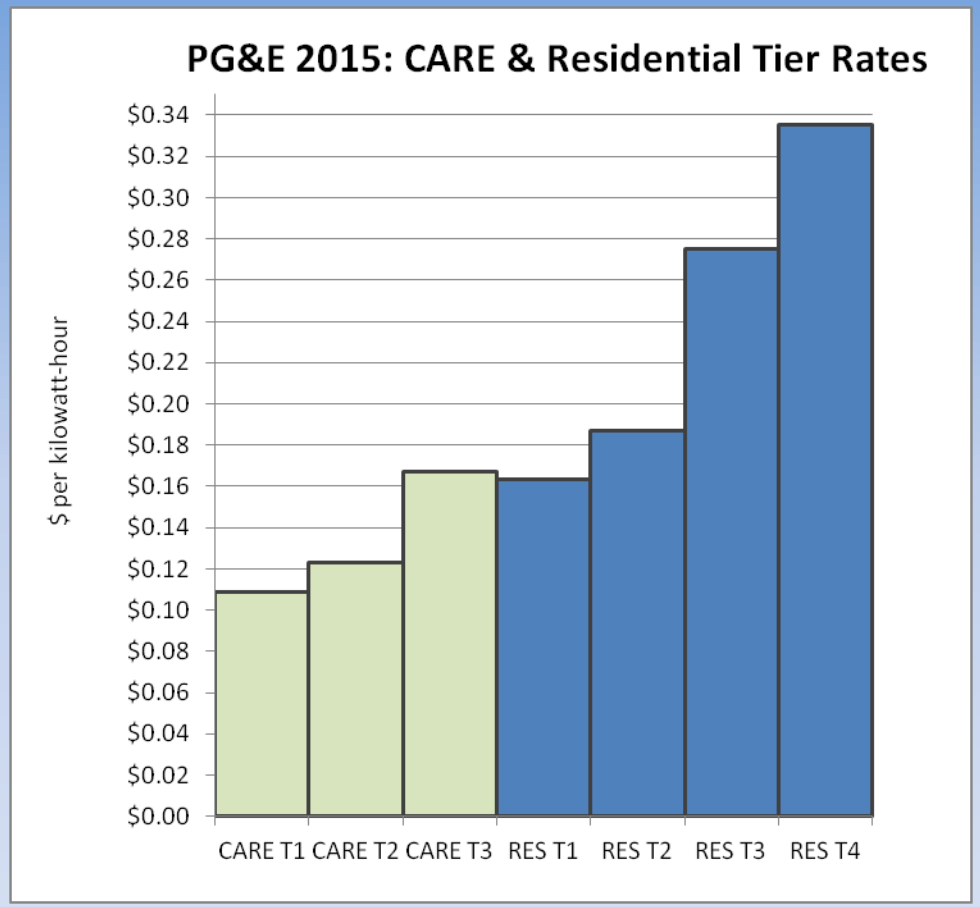
Low Tier Rates
Rewards conservation
& saves $$

Low Net Metering Rates

CARE Discount
= low NEM Compensation

Low Tier Rates & Conservation
= low NEM Compensation

Net Metering: Unintended Consequences



Installers have relied on higher tiers to make rooftop solar pencil out

High subsidies from SASH & MASH programs
Largely just offset Low Tier Rates

Supporting Market Growth

AB 327 Requires Program Alternatives: Support Market Growth of Customer Generation in Disadvantaged Communities

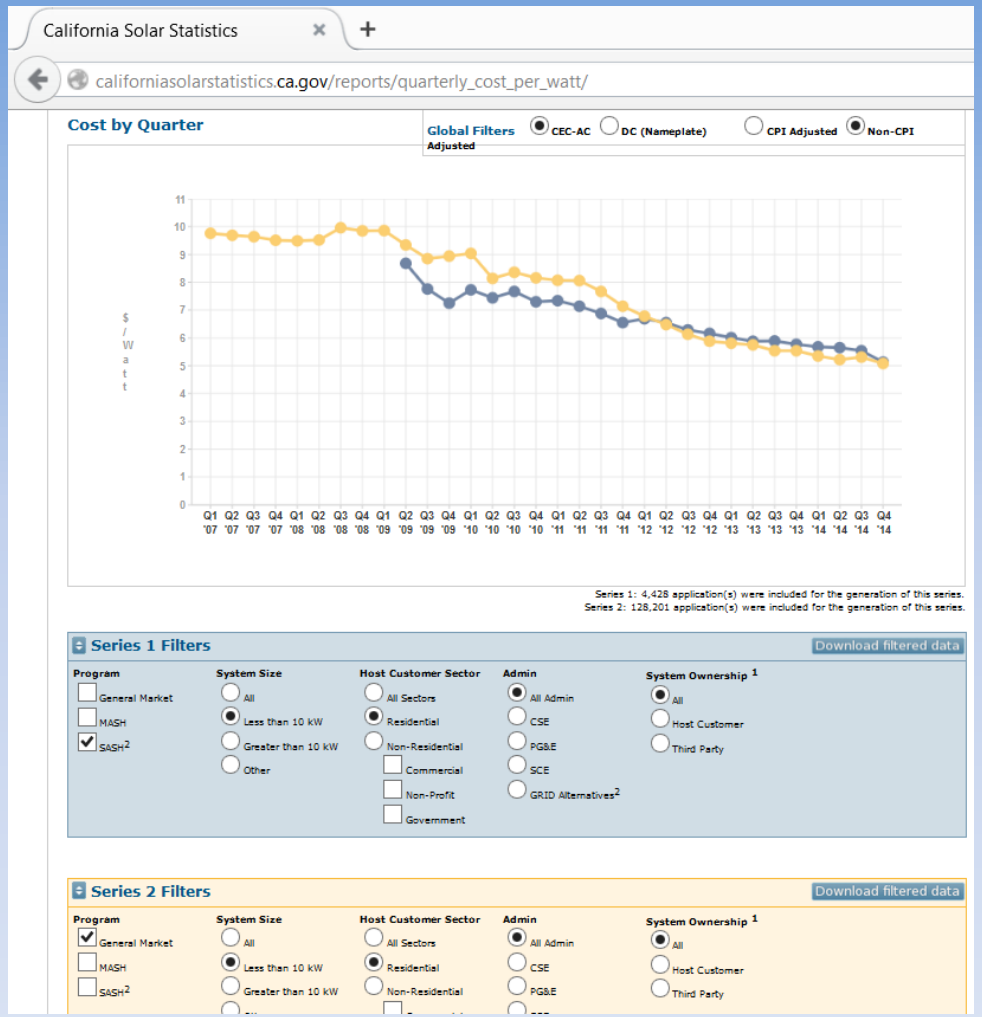
Structure: Needs to overcome program barriers

- long-term contract
- predictable cash flow
- limitation of risk
- address split incentive

Compensation Rate: Needs to cover long-term cost of projects

- installation
- loan financing & return on equity
- operation & maintenance
- insurance

Supporting Market Growth



CSI Low Income & General Market

Installed Costs Similar since 2012

Near $5/Watt-AC in Q4 2014

Decrease Avg. ~8%/year since 2007

Source: californiasolarstatistics.ca.gov, March 31, 2015

Supporting Market Growth

Potential/Illustrative Cost of Residential Solar Energy

	Install Cost	$5.00	$4.50	$4.00	per watt
	Loan Rate	6.50%	6.50%	6.50%	
	Term	25	25	25	years
	Interest	$4.62	$4.16	$3.70	per watt
1.50%	O&M	$0.08	$0.07	$0.06	per watt-year
	Total Cost	$11.50	$10.35	$9.20	per watt
	Capacity Factor	17%	17%	17%	
	Specific Yield	1.49	1.49	1.49	kWh/watt-year
	Cost of Energy	$0.309	$0.278	$0.247	per kWh

Need to consider reasonable range of cost assumptions; not just optimal

Above table assumes no residential solar tax credit

- Due to sunset after 2016
- May not be usable for low income customers

Net Meter Feed-in Tariff (NEM-FiT)

Elements of Feed-in Tariff

Guaranteed long-term compensation rate (e.g., 25 years)

Compensation is in cash (NOT bill credit)

Price & terms supported by contract

Contract can allocate benefits & define contingencies

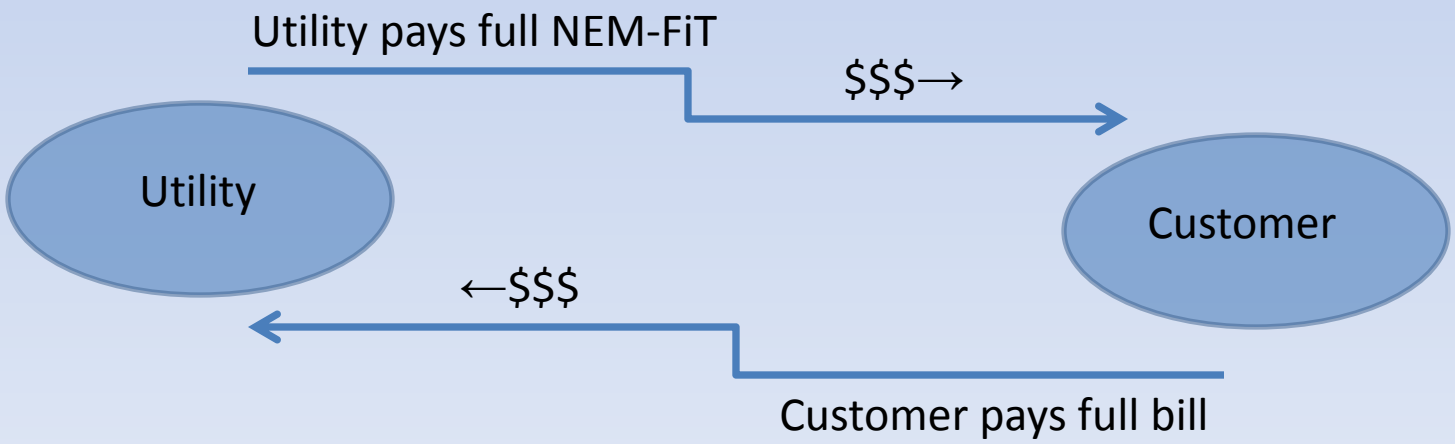
Net Meter Feed-in Tariff (NEM-FiT)

Customer Continues to Pay Full Utility Bill

No loss of utility revenue

Separate cash stream for customer NEM-FiT project

Utility does not extend credit (i.e., unlike on-bill financing)



Net Meter Feed-in Tariff (NEM-FiT)

Elements of Net Metering

In normal net metering:

The value of customer generation offsets utility bill

Customer owns generation & value of externalities (e.g., RECs & GHG)

In NEM-FiT:

The value of customer generation and utility bill are disaggregated

Customer may retain certain rights regarding ownership & use of electricity, and ownership of RECs & GHG attributes

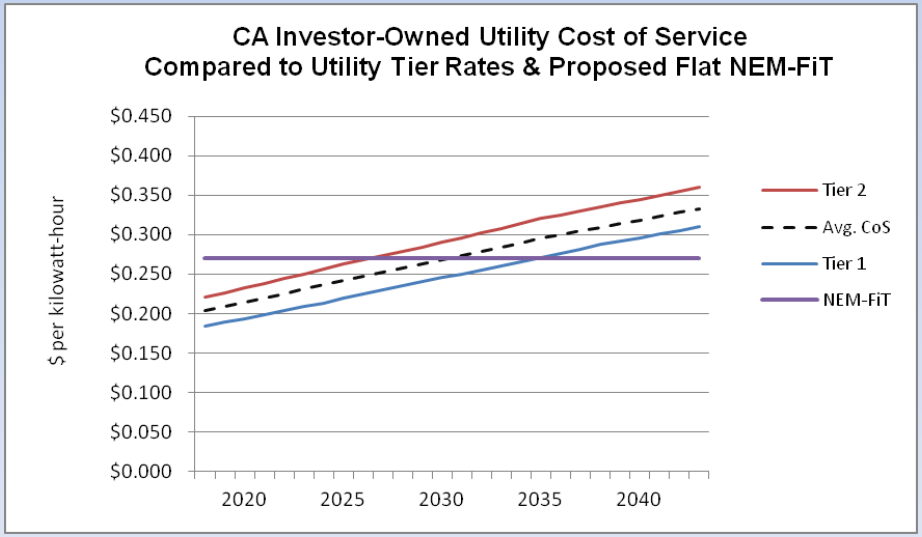
Net Meter Feed-in Tariff (NEM-FiT)

Compensation Rate

Residential Solar PV expected to need between 25 and 30 cents/kWh in 2017

Similar to long-term average cost of service (which is much lower than highest tiers)

Flat Payment Rate: initial rate higher than CoS; later will pay less than CoS.



Net Meter Feed-in Tariff (NEM-FiT)

Compensation Rate

Rate can be annually adjusted to changes in technology cost

Rate should be differentiated by technology

Should pay much higher rate if battery storage is added—
i.e., levelized CoE for new natural gas peaking plant ~80 cent/kWh

Net Meter Feed-in Tariff (NEM-FiT)

Potential Parties to Structured Contract